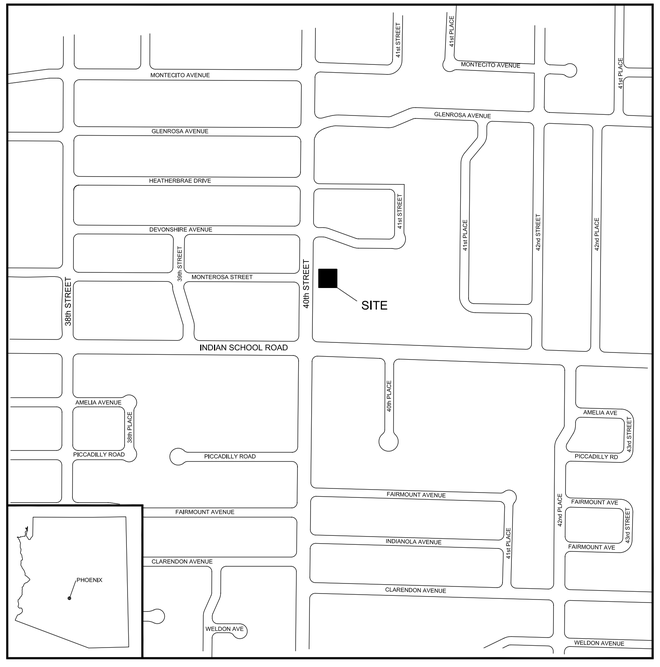
AS BUILT DESIGN DRAWINGS FOR
AIR SPARGE/SOIL VAPOR EXTRACTION (AS/SVE) REMEDIATION SYSTEM
AT FORMER ALLEN'S CLEANERS FACILITY
4020 EAST INDIAN SCHOOL ROAD
PHOENIX, ARIZONA 85018
JULY 2004



VICINITY MAP

APPROXIMATE SCALE: 1" = 400'

DESIGNED FOR:
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
REMEDIAL PROJECTS SECTION
1110 WEST WASHINGTON STREET
PHOENIX, ARIZONA 85007-2935

SHEET INDEX

AS BUILT

SIGNATURE		DATE
REVIEW ENGINEER:	Jeff Rackow	07/01/04
PROJECT ENGINEER:	Melissa Lawrence	06/15/04
PROJECT MANAGER:	Duncan Aepli	
CLIENT:	ADEQ	

PREPARED BY:

SECOR
1403 WEST 10th PLACE, SUITE B-107
TEMPE, ARIZONA 85281

PREPARED FOR:
Arizona Department of
Environmental Quality
Remedial Projects Section

1110 West Washington Street
Phoenix, Arizona 85007-2935

TITLE:
TITLE SHEET

FORMER ALLEN'S CLEANERS
4020 EAST INDIAN SCHOOL ROAD
PHOENIX, ARIZONA 85018

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JWR/MSL	BDF	JWR

DATE:	CAD FILE:
01/10/05	See Footer

PROJECT NO.:	DRAWING SCALE:
18OT.20412.02	AS SHOWN

FIGURE NO.:
TS

SYMBOL SPECIFICATION

INSTRUMENT TYPE:

PS	PRESSURE SWITCH
PI	PRESSURE INDICATOR
FI	FLOW INDICATOR
FQI	FLOW METER (TOTALIZING)
CI	CAPACITIVE SENSOR
TI	TEMPERATURE INDICATOR
TT	TEMPERATURE TRANSDUCER
TS	TEMPERATURE SENSOR
LEL	EXPLOSIVITY METER
SL	STATUS LAMP
PC	PRESSURE CONTROL
SP	SAMPLE POINT
TSH	TEMPERATURE SWITCH HIGH
LVS	LOW VACUUM SWITCH
LSHH	LEVEL SWITCH HIGH HIGH
DPI	DIFFERENTIAL PRESSURE INDICATOR
VI	VACUUM INDICATOR

LINE DESIGNATION:

2	–	VR	–	01	–	PVC
SIZE IN INCHES		PROCESS		LINE NUMBER		MATERIAL SPECIFICATION

PROCESS:

V	VACUUM
VR	VAPOR REMOVAL
AD	AIR

MATERIAL SPECIFICATION:

PVC	POLYVINYL CHLORIDE
GM	GALVANIZED
RC	RIGID COPPER

EQUIPMENT:

CT	CONDENSATE TRAP
CV	CONTROL VALVE
DS	DISCHARGE SILENCER
FC	FLEXIBLE CONNECTOR
SV	SOIL VENT
VB	VACUUM BLOWER
PF	PARTICULATE FILTER
C	COMPRESSOR
B	BLOWER
CP	CONTROL PANEL
PRV	PRESSURE RELIEF VALVE

VALVES, FITTINGS & PIPING

- HAND CONTROL
- BLOWDOWN
- GATE
- CLOSED
- GLOBE
- CHECK
- PLUG
- BALL
- BUTTERFLY OR DAMPER
- NEEDLE
- THREE WAY
- ELECTRIC CONTROL GATE
- ELECTRIC BUTTERFLY OR DAMPER
- BLEED OR PURGE CONNECTION
- AIR RELEASE
- SOLENOID
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- FOOT VALVE
- FLEXIBLE PIPE
- CROSSOVER
- FLANGED CONNECTION
- SCREWED CONNECTION
- UNION
- COUPLING
- REGULATOR
- EXPANSION JOINT/SLEEVE
- HOSE CONNECTION
- INLINE TRAP
- INLINE FILTER
- STRAINER (BASKET TYPE)
- PLUG
- PIPE CAP
- SLIP UPDRAFT VENT CAP
- ELBOW – TURNED UP
- ELBOW – TURNED DOWN
- ELBOW – 90°
- ELBOW – 45°
- ELBOW – LONG RADIUS (LR)
- REDUCING ELBOW (2 × 4)
- QUICK CONNECT COUPLING
- BUSHING
- REDUCER (CONCENTRIC)
- TEE REDUCING (2 × 6 × 4)
- TEE (OUTLET UP)
- TEE (OUTLET DOWN)
- TEE

SITE SYMBOLS

- GROUNDWATER MONITORING WELL (4–inch DIAMETER)
- SOIL VAPOR EXTRACTION WELL
- AIR SPARGE WELL
- TEMPORARY BENCHMARK
- UTILITY POLE
- LIGHT POLE
- MANHOLE
- CATCH BASIN
- TREE/SHRUB
- TREE LINE
- HYDRANT
- SURVEY MONUMENT
- FENCE LINE (–X–X–X–)
- RAILROAD TRACKS
- R/W — RIGHT OF WAY
- PROPERTY BOUNDARY
- OVERHEAD ELECTRIC LINE (–E–)
- UNDERGROUND ELECTRIC LINE (— —E— —)
- GAS LINE (— —G— —)
- OVERHEAD TELEPHONE LINE (–T–)
- UNDERGROUND TELEPHONE LINE (— —T— —)
- WATER LINE (— —W— —)
- SANITARY SEWER LINE (— —SS— —)
- STORM SEWER LINE (— —S— —)
- PROCESS LINES ABOVE GRADE
- PROCESS LINES BELOW GRADE
- PNEUMATIC LINES ABOVE GRADE
- PNEUMATIC LINES BELOW GRADE
- LINES FOR FUTURE USE
- PIPING TRENCH

ARCHITECTURAL SYMBOL DESIGNATIONS

- 1 — OBJECT IDENTIFICATION
- XX — ROOM/SPACE IDENTIFICATION
- 2 — VERTICAL GRID REFERENCE LINE
- A — HORIZONTAL GRID REFERENCE LINE
- X / XXX — INDICATES SECTION/DETAIL NUMBER; INDICATES DRAWING SHEET ON WHICH SECTION/DETAIL IS SHOWN
- X / XXX — INDICATES AREA SHOWN IN REFERENCED DETAIL
- X / XXX — INDICATES SECTION NUMBER; INDICATES DRAWING SHEET ON WHICH SECTION IS SHOWN; SECTION CUT
- X / XXX — TITLE; SCALE

INSTRUMENTATION, CONTROLS & EQUIPMENT

- PI — PRESSURE INDICATOR
- TI — TEMPERATURE INDICATOR
- FI — FLOW INDICATOR
- BLOWER
- FILTER WITH DRAIN
- SILENCER
- TURBINE FLOWMETER W/ELECTRIC OUTPUT
- AIR/AIR HEAT EXCHANGER
- FILTER
- FILTER/SILENCER
- COMPRESSOR

INSTRUMENTATION

- INSTRUMENT TYPE / IDENTIFICATION NUMBER (PI 1) — INSTRUMENTS WITH LOCAL DISPLAYS NO REMOTE INPUT OR OUTPUT
- SENSOR TYPE & NUMBER (TYPE / SENSOR) — INSTRUMENTS WITH INPUTS OR OUTPUTS AT THE SITE CONTROL PANEL

(SENSOR DESIGNATION)

D	O	1
D=DISCRETE A=ANALOG H=HI SPEED	O=OUTPUT I=INPUT	SENSOR NUMBER

- INSTRUMENT IS CONTROLLED OFFSITE
- INSTRUMENT WITH INPUTS OR OUTPUTS LOCATED AT A LOCAL CONTROL PANEL OTHER THAN THE SITE CONTROL PANEL

ELECTRICAL SYMBOLS

- S — ELECTRICALLY OPERATED SOLENOID
- SEALOFF
- WP — 120 V RECEPTACLE – WEATHER PROOF
- JUNCTION BOX
- MAGNETIC MOTOR STARTER
- THERMAL OVERLOAD SWITCHES
- LAMP
- M — MOTOR
- LIMIT SWITCH
- LEVEL SWITCH
- PRESSURE SWITCH
- TEMPERATURE SWITCH
- SOLENOID
- CR — CONTROL RELAY
- t° OR T — THERMOSTAT

AS BUILT

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PROJECT MANAGER:	Duncan Aepli	
CLIENT:	ADEQ	

PREPARED BY:

SECOR
1403 WEST 10th PLACE, SUITE B-107
TEMPE, ARIZONA 85281

PREPARED FOR:

Arizona Department of Environmental Quality
Remedial Projects Section

1110 West Washington Street
Phoenix, Arizona 85007.2935

TITLE:

SYMBOL & LEGEND SHEET

FORMER ALLEN'S CLEANERS
4020 EAST INDIAN SCHOOL ROAD
PHOENIX, ARIZONA 85018

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JWR/MSL	BDF	JWR

DATE:	CAD FILE:
01/10/05	See Footer

PROJECT NO.:	DRAWING SCALE:
18OT.20412.02	AS SHOWN

FIGURE NO.:

G-1

1.0 INTRODUCTION

The enclosed drawings and specifications contain information for the construction and installation of the entire Air Sparge (AS)/ Soil Vapor Extraction (SVE) system. The following drawings depicting the AS/SVE system are required for construction and installation:

Drawing No.	Revision	Title
G-1	1	Symbol and Legend Sheet
G-2	1	Specifications
G-3	1	Site Layout with Trenching Plan
G-4	1	Construction Details
P-1	1	Process and Instrumentation Diagram
P-2	1	Piping Isometric
P-3	1	Equipment Layout
E-1	1	Electrical Plan
E-2	1	Single Line Diagram, Specifications

This package also contains the following specifications required for construction and installation:

- General
- Excavation
- Piping
- Electrical
- Equipment
- Equipment Enclosure

2.0 SPECIFICATIONS

2.1 General

1. The selected contractor shall verify all dimensions and site conditions before starting work. The consultant's Project Manager shall be notified of any discrepancy.
2. The contractor shall confirm a work schedule with the consultant's Project Manager at least 72-hours prior to any work at the site.
3. All materials used for construction of the system shall be new.
4. Equipment and instruments within the system that are specifically defined and for which manufacturer's information sheets have been supplied shall be provided by the consultant for installation by the contractor. All materials not specifically defined shall be provided by the contractor.
5. All necessary construction permits and inspections shall be obtained and paid for by the consultant, including permits for electrical, mechanical and civil construction. If necessary as determined by the ADEQ, the consultant shall obtain a Maricopa County Division of Air Pollution Control Permit to authorize installation/operation of the soil vapor extraction system.
6. The contractor will restore all excavated surface areas to original condition.
7. All construction areas shall be clearly marked with barricades and snow fence or other approved safety markers to restrict access and provide a safe work environment for the contractor.
8. A pre-construction meeting between the contractor and consultant will be required before any work begins. The meeting will be held at the site.
9. The contractor shall provide an electrician for one day during start-up of the equipment.
11. Contractor to repair any irrigation piping damaged during trenching and process piping installation in landscaped area.
10. The contractor shall warranty all materials and construction for a period of one year. All defects shall be corrected at no expense to the owner, consultant, or ADEQ-SPS.

2.2 Excavation

1. Existing asphalt pavement shall be sawcut to neat straight lines in trench locations. The cut width shall exceed the trench width by six inches on each side of the trench.
2. All excavated soils shall be placed adjacent to the trench. The consultant will field screen the excavated soil using a PID, and if multiple readings above 10 ppm are present, excavated soil will be stored on plastic sheeting and a sample will be submitted for laboratory analysis. Soil that is not contaminated can be stockpiled along the trench and used as backfill. The contractor shall dispose of all construction debris off-site including any pavement removed during trenching.
3. Where piping is installed below ground, the pipe shall be buried in a trench or excavation at a minimum depth of 18-inches to the top of the pipe, unless otherwise stated. Piping for electrical conduits shall be buried in a trench at a minimum depth of 24-inches to the top of the conduit. If excavations must remain open after normal work hours, they shall be plated and barricaded to deter foot or vehicular traffic. Excavations shall not remain open over a weekend.
4. The installed wells are finished with a surface-level temporary concrete patch and shallow subsurface sand pack to a depth of approximately 2.5 feet below grade. The contractor shall carefully excavate to remove the patch to expose the existing capped wellhead.
5. Process piping trenches and excavations shall be backfilled with imported clean sand or pea gravel material from 3-inches below the piping to 2-inches above the piping. Upon approval by the consultant, native soil may be used as backfill material from 2-inches above the piping to the bottom of the asphalt base material. Backfill shall be placed & compacted in the trench in maximum 6-inch lifts. The base material and backfill material shall be compacted to 95% of the relative dry density. Pavement removed for trenches or other excavations shall be replaced with new material to match existing material, thickness and color. The asphalt mix shall be designed and installed to allow for normal facility traffic including construction and maintenance trucks.

2.3 Piping

1. All underground process piping shall be schedule 40 PVC with glued slip fittings; all aboveground process piping shall be schedule 80 PVC with glued slip fittings or copper as indicated on the drawings. Unless otherwise stated, all valves shall be PVC slip fitted as indicated in the drawings.
2. When connecting to existing underground piping, the contractor shall first verify the existing piping path. Existing piping paths where shown on drawings are approximate.
3. The contractor shall cut the wellhead and install a "T" to tie into the process piping. The wells shall be finished with a minimum 18-inch diameter H-20 traffic rated water tight round manhole set in a 2'x2' concrete pad.
4. Where piping is routed above ground inside the equipment area, the piping shall be supported by unistrut pipe supports and clamps. The unistrut supports shall be fastened to a base that is secured to the ground surface. If the equipment enclosure is located on dirt or asphalt, the unistrut shall be anchored in a shallow concrete footing in the ground. If on concrete, fasten the unistrut base via expansion connectors.
5. Prior to backfilling, all process piping shall be pressure tested with air at 5 psi held for one hour and witnessed by a consultant's representative. Do not test through instruments or equipment.
6. All aboveground process piping shall be painted to match block wall with 2 coats of UV-resistant paint.

2.4 Electrical

1. The contractor shall furnish and install all necessary equipment to connect to the local electric service and route the appropriate electrical service to the C-1/C-2 control panel. If necessary, a temporary power pole can be installed no closer than 5-feet from the equipment area. The contractor will be responsible for providing power to the turnkey vapor extraction blower and air sparge compressor package, and for obtaining the electrical permit for operation of this equipment. The contractor shall verify operation of all electrical equipment upon completion of the work.
2. The consultant shall acquire all necessary permits and pay all associated fees for installation of electrical services.
3. The electrical service shall be equipped with a power meter and weather tight main panel with lockable shut-off switch located adjacent to the equipment area. The consultant will work with the contractor to place the new service billing in the following name:

   ADEQ-SPS
   c/o SECOR International Incorporated
   1830 W. University Drive, Suite 106
   Phoenix, Arizona 85281-3248
   Attn: Jeff Rackow, P.E. (18OT.20412)

4. All electrical work shall be completed in accordance with the most recent edition of the N.E.C., the local builidng department, and the local fire department. Any drawings required for permits other than those presented herein will be the responsibility of the contractor and shall be reviewed by the consultant prior to use.
5. All wiring shall be contained in conduits and all conduits or raceways shall be securely fastened to unistrut and/or the turnkey equipment skid as allowed by The City of Phoenix Code. Conduits may also be buried as allowed by The City of Phoenix Code.
6. The contractor shall arrange for the installation of telephone service to the C-1 vapor treatment unit. The consultant will work with the contractor to place the new service billing in the following name:

   ADEQ-SPS
   c/o SECOR International Incorporated
   1830 W. University Drive, Suite 106
   Phoenix, Arizona 85281-3248
   Attn: Jeff Rackow, P.E. (18OT.20412)

2.5 Equipment

The following equipment will be provided to the contractor by the consultant for installation:

Item No.	Item
C-1	Soil Vapor Extraction Blower Package. This unit will contain the vapor/liquid separator, particulate filter, vacuum blower (B-1), vacuum and pressure relief valves, air-cooled after cooler, control panel, etc.
C-2	Air Sparge Unit. This unit will contain the compressor blower (B-2), an air-cooled after cooler, and control panel.
GAC1,2	Activated Carbon Vessel containing min. 1,000 lb, coconut shell, vapor-phase carbon.
FQI 1-6	Air flow meters to be installed at the air spage manifold

* Items C-1 and C-2 are mounted on a common skid.

Vapor Extraction Blower Package (C-1)
200 CFM at 65 inches-w.c.
7.5 hp, 480 Volt, Three Phase, 60 Hertz
Fliteway Technologies, Inc., or Equal

Air Sparge Unit (C-2)
7.5 hp, 45 CFM, 15 psi min. Compressor
480 Volt, Three Phase
Rotary Claw or Equal

Air Flow Meter (FQI 1-6)
2-20 SCFM with needle valve
Rated 250°F, 150 psig
Dwyer Model RSF014V

Granular Activated Carbon Units (GAC1, GAC2)
US Filter/Westates VSC-1200 or Equal
500 CFM (max), 15 psig (max)
140°F (max). U.S. Sieve
4x8 Coconut Shell

2.6 Equipment Area/Enclosure

1. Contractor to install the following signage on all sides of the enclosure:
   - DANGER HIGH VOLTAGE
   - DANGER OPERATING EQUIPMENT
   - OTHERS (AS APPLICABLE PER LOCAL CODE)

   The signs shall be made of fiberglass reinforced plastic and shall be at least 10-inches by 14-inches.

3.0 SAFETY/CLEAN-UP

1. The contractor shall read, sign and abide by the consultant's Site Specific Health and Safety Plan prior to beginning any work.
2. The contractor shall contain loose debris and safely store construction materials on a daily basis prior to departure from the site to provide a clean and orderly work area.

AS BUILT

SIGNATURE		DATE
REVIEW ENGINEER:	Jeff Rackow	07/01/04
PROJECT ENGINEER:	Melissa Lawrence	06/15/04
PROJECT MANAGER:	Duncan Aepli	
CLIENT:	ADEQ	

PREPARED BY:

SECOR
1403 WEST 10th PLACE, SUITE B-107
TEMPE, ARIZONA 85281

PREPARED FOR:
Arizona Department of Environmental Quality
Remedial Projects Section
1110 West Washington Street
PHOENIX, ARIZONA 85007-2935

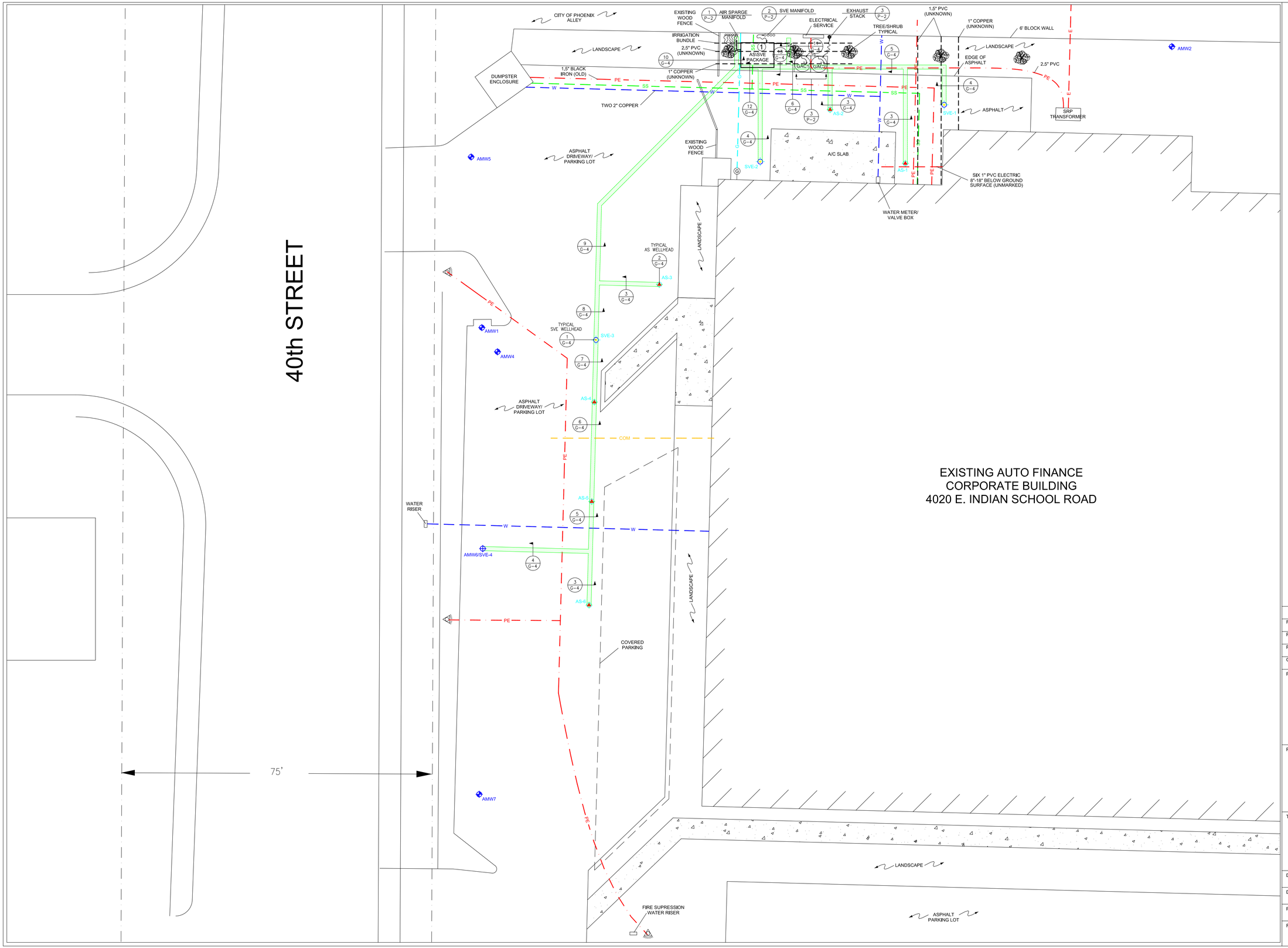
TITLE:
SPECIFICATIONS
FORMER ALLEN'S CLEANERS
4020 EAST INDIAN SCHOOL ROAD
PHOENIX, ARIZONA 85018

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JWR/MSL	BDF	JWR

DATE:	CAD FILE:
01/10/05	See Footer

PROJECT NO.:	DRAWING SCALE:
18OT.20412.02	AS SHOWN

FIGURE NO.:
G-2



EXISTING AUTO FINANCE
CORPORATE BUILDING
4020 E. INDIAN SCHOOL ROAD

LEGEND:

- AMW-1 — EXISTING GROUNDWATER MONITORING WELL
- AMW-6/SVE-4 — EXISTING GROUNDWATER MONITORING WELL/ SOIL VAPOR EXTRACTION WELL
- AS-1 — EXISTING AIR SPARGE WELL
- SVE-1 — EXISTING SOIL VAPOR EXTRACTION WELL
- G — NATURAL GAS LINE
- E — SRP UNDERGROUND ELECTRIC LINE
- PE — PRIVATE UNDERGROUND ELECTRIC LINE
- SS — SANITARY SEWER LINE
- W — UNDERGROUND WATER LINE
- COM — COMMUNICATIONS LINE
- RIGHT-OF-WAY LINE
- AS/SVE PIPING TRENCH
- OVERHEAD PARKING LIGHT
- GAC2 — GRANULAR ACTIVATED CARBON VESSEL

NOTES:

(1) AS/SVE PACKAGE CONSISTS OF:
AS COMPRESSOR PACKAGE
7.5HP, 460V, 3 PHASE COMPRESSOR MOTOR
0.25HP, 460V, 3 PHASE COOLING FAN MOTOR
SVE BLOWER PACKAGE
5.0HP, 460V, 3 PHASE BLOWER MOTOR
0.25HP, 460V, 3 PHASE COOLING FAN MOTOR
(SEE VENDOR SPECIFICATIONS ON P&ID)

N

0 10 20
SCALE IN FEET

AS BUILT

SIGNATURE		DATE
REVIEW ENGINEER:	Jeff Rackow	07/01/04
PROJECT ENGINEER:	Melissa Lawrence	06/15/04
PROJECT MANAGER:	Duncan Aepli	
CLIENT:	ADEQ	

PREPARED BY:

SECOR
1403 WEST 10th PLACE, SUITE B-107
TEMPE, ARIZONA

PREPARED FOR:

Arizona Department of
Environmental Quality
Remedial Projects Section

1110 West Washington Street
Phoenix, Arizona 85007-2935

TITLE:

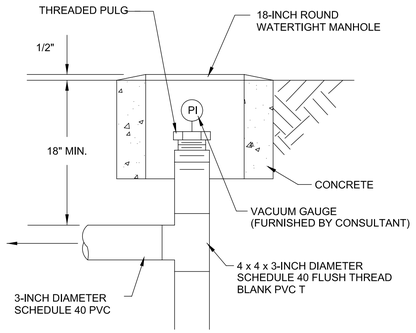
SITE LAYOUT WITH TRENCHING PLAN

FORMER ALLEN'S CLEANERS
4020 EAST INDIAN SCHOOL ROAD
PHOENIX, ARIZONA 85018

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JWR/MSL	BDF/JDD	JWR

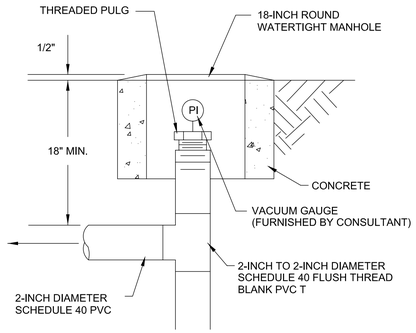
DATE:	CAD FILE:
01/10/05	See Footer
PROJECT NO.:	DRAWING SCALE:
18OT.20412.02	AS SHOWN

FIGURE NO.: G-3



SVE WELLHEAD DETAIL 1

NOT TO SCALE



AS WELLHEAD DETAIL 2

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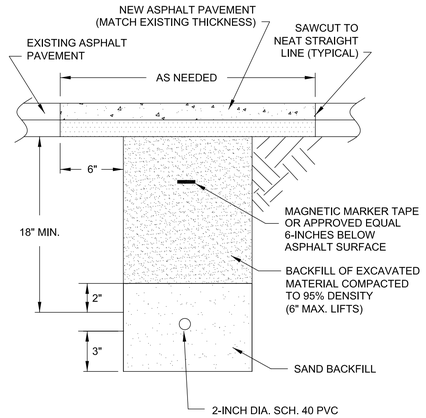

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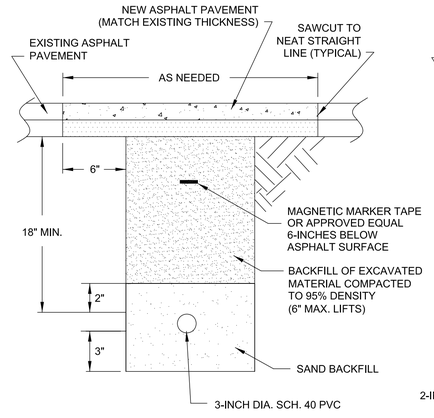

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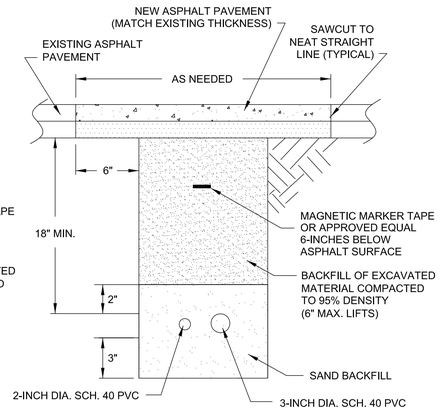

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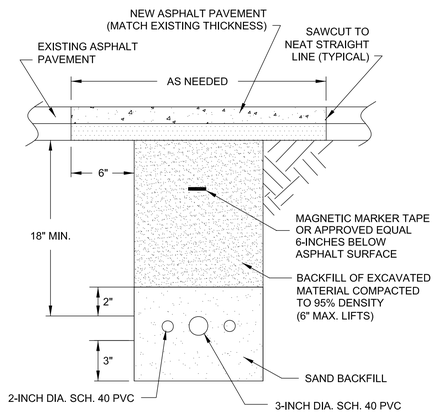

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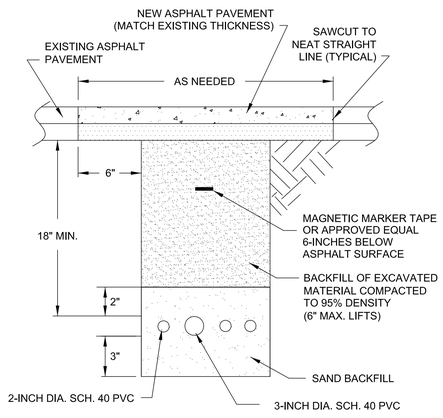

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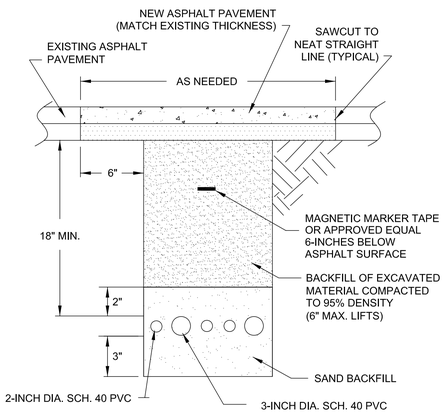

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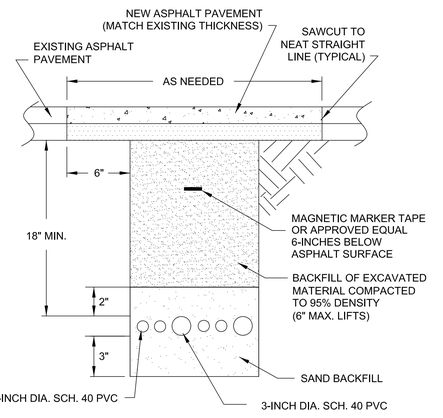

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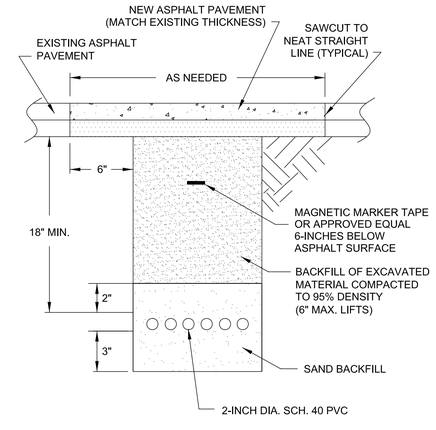

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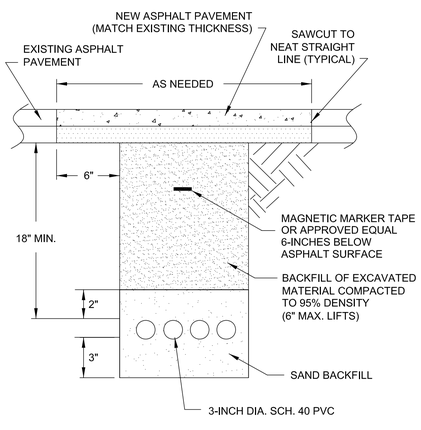
NOT TO SCALE



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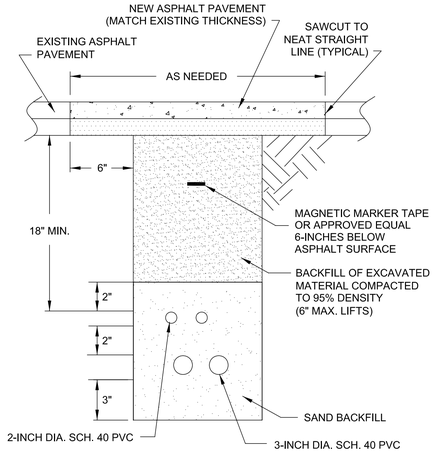

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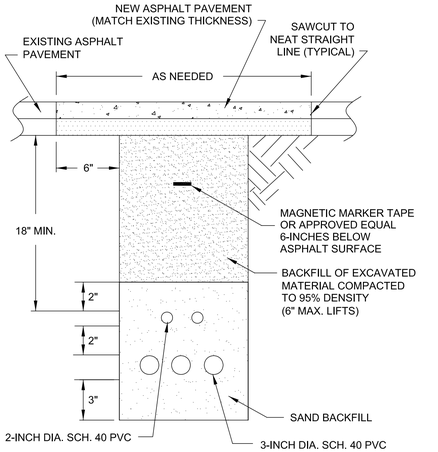
NOT TO SCALE



DETAIL 13

NOT TO SCALE

AS BUILT

SIGNATURE		DATE
REVIEW ENGINEER:	Jeff Rackow	07/01/04
PROJECT ENGINEER:	Melissa Lawrence	06/15/04
PROJECT MANAGER:	Duncan Aepli	
CLIENT:	ADEQ	

PREPARED BY:

SECOR
1403 WEST 10th PLACE, SUITE B-107
TEMPE, ARIZONA 85281

PREPARED FOR:

Arizona Department of Environmental Quality
Remedial Projects Section

1110 West Washington Street
PHOENIX, ARIZONA 85007-2935

TITLE:

CONSTRUCTION DETAILS

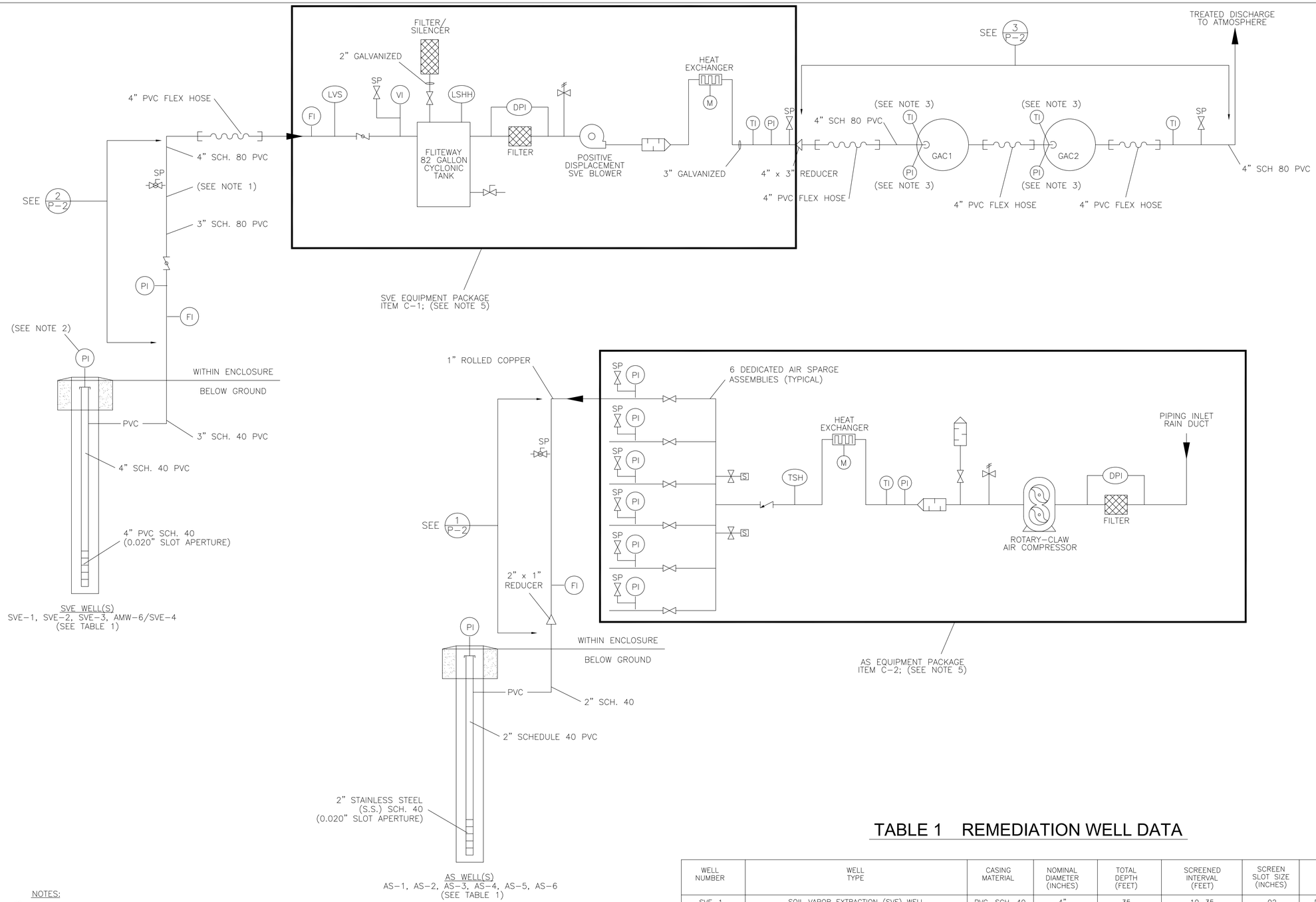
FORMER ALLEN'S CLEANERS
4020 EAST INDIAN SCHOOL ROAD
PHOENIX, ARIZONA 85018

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JWR/MSL	BDF/JDD	JWR

DATE:	CAD FILE:
01/10/05	See Footer
PROJECT NO.:	DRAWING SCALE:
18OT.20412.02	AS SHOWN

FIGURE NO.:

G-4



NOTES:

1. DEDICATED ABOVEGROUND SVE WELL PROCESS PIPING SHALL BE 3" SCH 80 PVC. COMMON SVE HEADER PIPE SHALL BE 4" SCH 80 PVC. SEE (2 P-2) FOR PIPE SIZE REDUCTION DETAILS.
2. CONSULTANT TO PROVIDE VACUUM GAUGES FOR SVE WELLHEADS.
3. CONSULTANT TO PROVIDE LOW-RANGE PRESSURE INDICATORS AND TEMPERATURE GAUGES FOR GAC VESSELS.
4. CONTRACTOR TO INSTALL INSTRUMENTATION AT LOCATIONS MARKED BY CONSULTANT.
5. AS/SVE EQUIPMENT PACKAGES ARE INDEPENDENT SYSTEMS MOUNTED ON A COMMON SKID AND FURNISHED BY CONSULTANT.
6. CONTROL PANEL IS MOUNTED ON COMMON SKID TO OPERATE/CONTROL BOTH AS/SVE EQUIPMENT PACKAGES.

TABLE 1 REMEDIATION WELL DATA

WELL NUMBER	WELL TYPE	CASING MATERIAL	NOMINAL DIAMETER (INCHES)	TOTAL DEPTH (FEET)	SCREENED INTERVAL (FEET)	SCREEN SLOT SIZE (INCHES)	SCREEN MATERIAL
SVE-1	SOIL VAPOR EXTRACTION (SVE) WELL	PVC. SCH. 40	4"	35	10-35	.02	PVC. SCH. 40
SVE-2	SVE WELL	PVC. SCH. 40	4"	35	10-35	.02	PVC. SCH. 40
SVE-3	SVE WELL	PVC. SCH. 40	4"	35	15-35	.02	PVC. SCH. 40
AMW-6/SVE-4	COMBINATION GW MONITORING/SVE WELL	PVC. SCH. 40	4"	50	30-50	.02	PVC. SCH. 40
AS-1	AIR SPARGE (AS) WELL	PVC. SCH. 40	2"	58	53-58	.02	S.S. SCH. 40
AS-2	AS WELL	PVC. SCH. 40	2"	58	53-58	.02	S.S. SCH. 40
AS-3	AS WELL	PVC. SCH. 40	2"	58	53-58	.02	S.S. SCH. 40
AS-4	AS WELL	PVC. SCH. 40	2"	58	53-58	.02	S.S. SCH. 40
AS-5	AS WELL	PVC. SCH. 40	2"	58	53-58	.02	S.S. SCH. 40
AS-6	AS WELL	PVC. SCH. 40	2"	58	53-58	.02	S.S. SCH. 40

SIGNATURE		DATE
REVIEW ENGINEER:	Jeff Rackow	07/01/04
PROJECT ENGINEER:	Melissa Lawrence	06/15/04
PROJECT MANAGER:	Duncan Aepli	
CLIENT:	ADEQ	

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TITLE:

PROCESS & INSTRUMENTATION DIAGRAM

FORMER ALLEN'S CLEANERS
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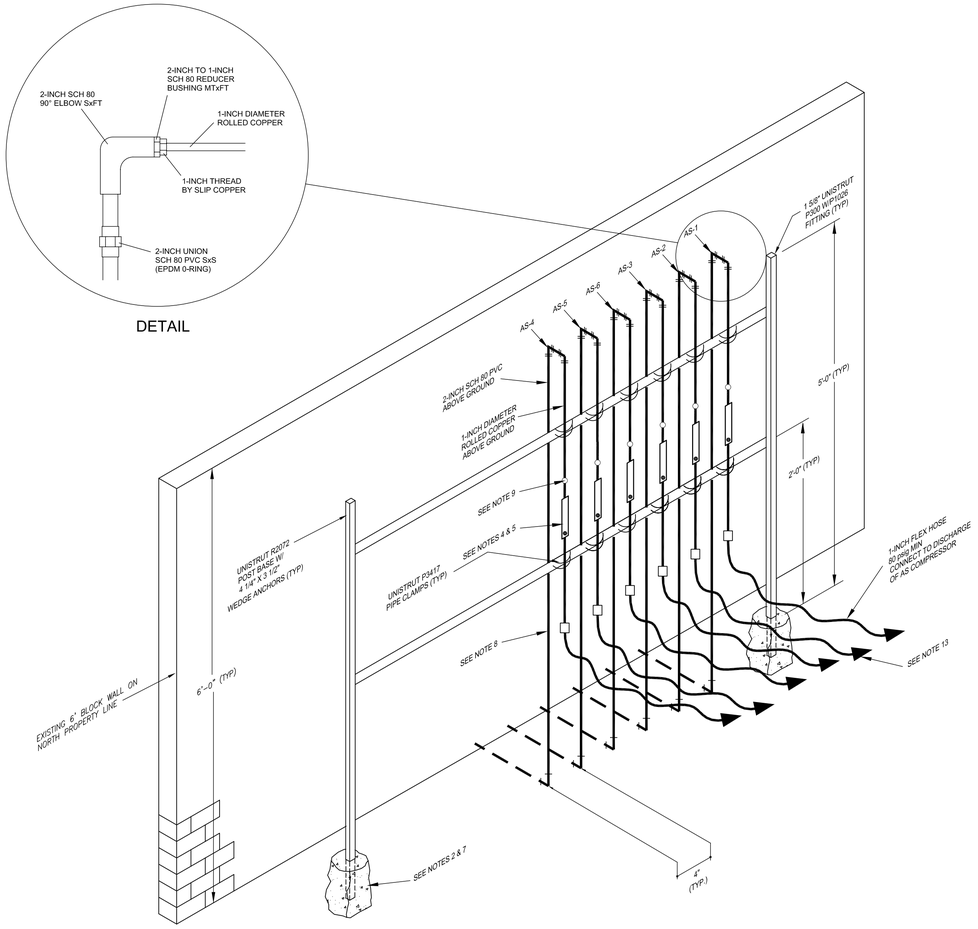
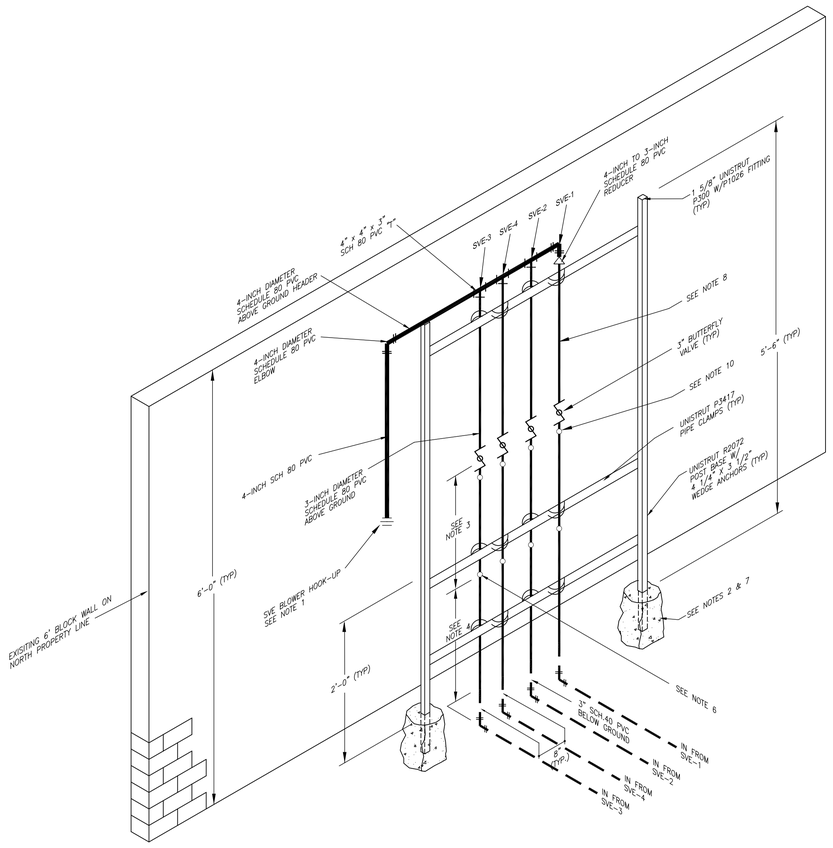
FIGURE NO.:

P-1



DETAIL

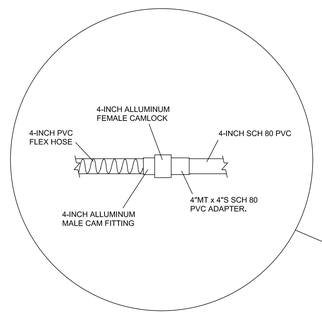
1 AIR SPARGE PIPING ISOMETRIC
SCALE: NOT TO SCALE



2 SOIL VAPOR EXTRACTION PIPING ISOMETRIC
SCALE: NOT TO SCALE

NOTES:

1. CONTRACTOR TO ROUTE 4-INCH DIAMETER FLEX HOSE AS SPECIFIED FROM UNION TO SVE BLOWER INLET CONNECTION AT C-1.
2. UNISTRUT PIPE SUPPORT WITH MIN. 6" DIA x 12" DEEP CONCRETE FOOTING (TYP).
3. MINIMUM DISTANCE BETWEEN VALVE AND FLOW INSTRUENTATION IS TEN PIPE DIAMETERS (TYP).
4. MINIMUM DISTANCE BETWEEN FLOW INSTRUMENTATION AND ELBOW IS TEN PIPE DIAMETERS (TYP).
5. CONSULTANT WILL PROVIDE FLOW METER (ROTAMETER); CONTRACTOR TO INSTALL (TYP).
6. CONTRACTOR TO INSTALL 1/2-INCH BRASS BALL VALVE TAPPED INTO RISER (TYP).
7. UNISTRUT PIPE SUPPORT TO BE MOUNTED 12" FROM THE EXISTING BLOCK WALL FENCE LINE (TYP).
8. CONTRACTOR TO PLUMB AND LEVEL MANIFOLD PIPING.
9. CONTRACTOR TO INSTALL 1"S x 1"S x 1/4" FMT COPPER TEE FOR CONECTION OF BACK-MOUNT 1/4" MALE PIPE THREAD PRESSURE GAUGE.
10. CONTRACTOR TO DRILL, TAP (1/4-INCH PIPE THREAD), AND INSTALL 1/4-INCH MALE THREADED PLUG FOR MONITOR PORT.
11. CONTRACTOR SHALL LABEL RISER WITH CORRESPONDING WELL IDENTIFICATION (TYP).
12. CONSULTANT MUST BE PRESENT DURING THE INSTALLATION OF ITEMS IN NOTES 5, 6, AND 9.
13. CONTRACTOR TO ROUTE 1-INCH DIAMETER FLEX HOSE AS SPECIFIED FROM THE INLET OF AS MANIFOLD TO THE DISCHARGE OF AS COMPRESSOR ON "TURNKEY" AS/SVE PACKAGE.



DETAIL

3 GAC & EXHAUST PIPING ISOMETRIC
SCALE: NOT TO SCALE

AS BUILT

SIGNATURE		DATE
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TITLE:

PIPING ISOMETRIC

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FIGURE NO.: P-2

CITY OF PHOENIX ALLEY

INSTALL AIR SPARGE MANIFOLD 1 P-2

INSTALL SVE MANIFOLD 2 P-2

INSTALL 4" FLEX HOSE CONNECTIONS (SEE NOTE 2)

INSTALL NEW ELECTRICAL SERVICE ENTRANCE E-1

INSTALL EXHAUST STACK 3 P-2

EXISTING 6' BLOCK WALL

EXISTING WOOD FENCE

POSITION SKID AND INSTALL CONNECTIONS TO AS/SVE PACKAGE

SS

W

PE

OUT

OUT

IN

IN

GAC1

GAC2

TYPICAL AS/SVE UTILITY TRENCH AND PIPING (SEE SHEET G-4)

EDGE OF EXISTING ASPHALT

2 P-2

POSITION AND INSTALL CONNECTIONS TO GAC VESSELS

G

PE

SS

W

PE

SS

W

AS-2

SVE-1

EXISTING WOOD FENCE

G

SVE-2

A/C SLAB

AS-1

PE

SS

PE

WATER METER/ VALVE BOX

LEGEND:

- AMW-1 — EXISTING GROUNDWATER MONITORING WELL
- AS-1 — EXISTING AIR SPARGE WELL
- SVE-1 — EXISTING SOIL VAPOR EXTRATION WELL
- G — EXISTING NATURAL GAS LINE
- E — SRP UNDERGROUND ELECTRIC LINE
- PE — PRIVATE UNDERGROUND ELECTRIC LINE
- SS — SANITARY SEWER LINE
- W — UNDERGROUND WATER LINE
- AS/SVE PIPING TRENCH
- OVERHEAD PARKING LIGHT
- GAC2 — GRANULAR ACTIVATED CARBON VESSEL

NOTES:

1. SKID MOUNTED AS/SVE PACKAGE SHALL BE FURNISHED BY CONSULTANT.
2. CONTRACTOR SHALL PURCHASE AND INSTALL 4" INDUSTRIAL-GRADE PVC OR APPROVED EQUAL FLEX HOSE WITH ALUMINUM CAM-LOCK FITTINGS AND CONFIRM HOOK-UP REQUIREMENTS BASED ON MANUFACTURES SCHEMATICS AND REVIEW WITH CONSULTANT.

N

0 2 4

SCALE IN FEET

AS BUILT

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TITLE:

EQUIPMENT LAYOUT

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FIGURE NO.:

P-3